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A COMPARISON OF PATIENTS' AND NURSES'
PERCEPTIONS OF STIMULI EXPERIENCED
IN AN INTENSIVE CARE UNIT

by

JANICE L. ABLES

A RESEARCH PROJECT

Submitted in partial fulfillment of the requirements in
the course NAH 592: Research Project Seminar: Adult
Health Nursing in the School of Nursing in The
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ADULT HEALTH NURSING

ABSTRACT

The purpose of this study was to determine if there was a signifi-
cant difference between patients' and nurses' perceptions of the stimuli
experienced by Intensive Care Unit (ICU) patients. In addition, it
determined if there was a significant relationship between the patients'
perceptions of stress and the number of days spent in the ICU, the
severity of illness, or whether a patient received an ICU orientation
visit.

The study was designed as a descriptive survey in which both patients
and nurses rated, on a 4 point scale, the intensity of 22 stimuli commonly
encountered in the ICU. The subjects were a convenience sample of 20
matched pairs consisting of a patient who had spent at least 24 hours
in the ICU and a nurse who had cared for that patient in the ICU. (KT)

The results of a Wilcoxin Signed-Rank test ($p < 0.01$) showed that
30% of the nurse/patient pairs had a significant difference in their
perceptions of stimuli affecting patients in an ICU. Pearson correlates
indicated that there was no significant relationship between a patient's
total stress score (determined by adding the ratings assigned to each of
the 22 stimuli) and the number of days spent in the ICU ($r = 0.39$, $p =
0.083$), or the patient's severity of illness as determined by the
Therapeutic Intervention Scoring System ($r = 0.32$, $p = 1.685$). A point-
biserial correlation revealed no significant relationship between
total stress score and an orientation visit to the ICU ($r_{pb} = 0.22$,
$p = 0.345$)

The findings demonstrated that the majority of nurses were able to accurately assess individual patients' reactions to stimuli. In nursing education programs, emphasis should be placed on assessment procedures and nursing interventions to reduce patient stress.

Research suggested by this study includes replicating it using a larger sample size in various critical care settings. The findings should be extended by conducting research examining nursing interventions which alter environmental stimuli and their subsequent impact on the amount of stress experienced by patients. Further research should be conducted examining the effects of ICU orientation on patient stress levels.

ACKNOWLEDGEMENTS

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CHAPTER I

Introduction

The establishment of a special unit designed for the intensive care of selected patients was first reported by Johns Hopkins Hospital in 1923. During the 1940s and 1950s, the recovery room was developed to care for patients during the postanesthesia period. As surgical techniques and medical therapy became more complicated, the need for one unit where technology and expert nursing care could be combined became evident. In response, coronary care units and cardiac surgery units were developed during the 1960s. Today, patients experiencing diverse surgical and medical crises are admitted to intensive care units (ICUs) where complex medical and nursing care can be provided (Adler & Shoemaker, 1979). Unfortunately, no one predicted that patients would be adversely affected by stimuli inherent in the design and purpose of the ICU.

The literature supports the fact that patients are exposed to and react to stimuli that are unique to the ICU setting. Studies have found that 25-40% of ICU patients experience identifiable psychological upsets in response to the stimuli from the critical care environment (Egerton & Kay, 1964; Hale, Koss, Keistan, Camp & Barash, 1977; Kornfeld, 1971). The term ICU syndrome was used by Fisher and Moxham (1984) to describe these emotional and psychological changes.

Bedell, Cleary, and DeBlanco (1984) found that patients sensed a loss of control over time and eventually manifested an altered perception of time and place. They developed a sense of powerlessness and

uncertainty over what would be done to them. Researchers have also noted physical manifestations of stress, including increased blood pressure, heart rate, and muscle tension (Downey, 1972). These psychological and physiological disturbances affect the patient's ability to cope with illness and injury.

The nursing staff is responsible for formulating plans of care which will promote patient adaptation to the ICU environment. In order to accomplish this task, nurses must be able to determine each patient's response to environmental stimuli. Therefore, it is important to compare nurses' and patients' perceptions of the stimuli experienced in the ICU.

Purpose

The primary purpose of this study was to determine whether there was a significant difference between patients' and nurses' perceptions of the stimuli experienced by ICU patients. In addition, the study dete· ed if there was a significant relationship between the patients' percepti· f stress and the number of days spent in the ICU, the severit illness as determined by the Therapeutic Intervention Scoring System (TISS), and whether a patient receives an ICU orientation visit.

Conceptual Framework

The theory used as a basis for this study was the Roy adaptation model (Roy, 1984). The adaptation model centers on the patient's adaptation to stimuli and the nurse's role in promoting adaptation. Sister Callista Roy believes that all people are in constant interaction with their environment. Individuals are exposed to three types of stimuli: (a) focal, (b) contextual, and (c) residual.

Focal stimuli are those factors most immediately confronting the person, the ones to which an adaptive response must be made. These factors can be physiological, psychological, or a combination of the two.

The stimuli can be located in the external environment or may be internal to the person (e.g., pain, fever, invasive procedures, disease states).

Contextual stimuli are factors which contribute to the effect of the focal stimulus. They include all other stimuli present at the time (e.g., noise, light, verbal input from nurses and physicians) that influence the response to the focal stimulus.

Residual stimuli are factors which are presumed to affect the current situation but cannot be directly measured. They influence a person's response to the focal stimuli but their effect has not been validated. Residual stimuli include beliefs, attitudes, and prior experiences (e.g., medical history, previous hospitalizations, fears). When residual stimuli have been validated as influencing a possible response, they become contextual (Roy, 1984).

Roy (1984) identifies two subsystems, the regulator and cognator, which mediate adaptation. The regulator processes stimuli through physiological mechanisms to effect a response. It initiates automatic defense responses essential to maintain life (e.g., the immune system, coagulation cascade, fight or flight response) and alerts the cognator that a stimulus has occurred. The cognator responds to stimuli through psychological processes, either conscious or unconscious. Each individual's perception of a stimulus defines and initiates a unique response to that stimulus. The regulator continues to provide information and feedback to the cognator throughout the duration of the stimulus.

Adaptation to the stimuli occurs in four modes - physiologic, self-concept, role function, and interdependence. The physiologic mode involves the body's basic functions and methods of adaptation. They include nutrition, elimination, oxygenation, activity and rest, and protection.

The self-concept mode is the composite of one's beliefs and feelings about oneself. It includes body image, self-awareness, and sense of self-worth.

Role function is the performance of duties based on a person's position in society. The interdependence mode involves relationships with significant others and support systems (Roy, 1984).

In an ICU, all of the adaptive modes can be impaired. The patient's physiologic systems are in massive imbalance. Their self-concept and role function are altered as they become dependent on nurses and other caregivers. Finally, their interdependent relationships are altered by separation from family and friends.

Nursing is concerned with the person as a total being at some point along the health-wellness continuum. The goal of nursing is to support and promote adaptation through the regulator/cognator processes in each of the four adaptive modes at whatever point the patient is on the continuum (Roy, 1984). To achieve this goal, nurses must identify the stimuli experienced by each individual patient and determine how the patient interprets these stimuli. Once identified, interventions can be implemented to manipulate the stimuli and promote adaptation. When adaptation occurs, the patient's energy is conserved and made available for the healing process.

Statement of the Problem

The problems for this study were identified as follows:

1. Is there a significant difference between patients' and nurses' perceptions of the stimuli experienced by the ICU patients?

2. Is there a significant relationship between patients' perceptions of stress and the number of days spent in the ICU?

3. Is there a significant relationship between patients' perceptions of stress and the severity of illness?

4. Is there a significant relationship between patients' perceptions of stress and whether they received an ICU orientation prior to admission?

Definition of Terms

The terms used in this study were defined as follows:

<u>Stimuli</u> - internal or external factors that evoke or influence a response from an individual (Roy, 1984). In this study, a stimulus was a tension-producing factor identified by a subject's rating on the Wilson ICU Stressor Scale (Wilson, 1987).

<u>Perception</u> - "process of being aware of the elements of the environment" (Webster's, 1981, p. 1675). In this study, perception was identified by self-reports of the interpretation of internal and external conditions in an ICU measured by the Wilson ICU Stressor Scale.

<u>Patient</u> - "an individual awaiting or receiving medical care or treatment" (Webster's, 1981, p. 1655). A patient in this study was a person 18 years of age or older who had been in the ICU a minimum of 24 hours prior to being transferred to a medical-surgical floor.

<u>Nurse</u> - "a person trained in caring for the sick, injured, or infirmed" (Webster's, 1981, p. 1551). The participants in this study were staff nurses in the ICU who had a bachelors degree in nursing.

<u>ICU</u> - a hospital unit specifically designed to care for people who have sustained or are at risk of sustaining acutely life-threatening single or multiple organ system failure due to disease or injury, and who require prolonged minute to minute therapy from a multidisciplinary multiprofessional medical-nursing team (Parillo & Ayres, 1984). An 11 bed multidisciplinary ICU in a military medical center was used in this study.

Assumptions

The assumptions which underlie this study were:

1. ICU patients experience stress.

2. Excessive stress is detrimental to the individual.

3. Subjects can rate stressful stimuli according to intensity.

4. Nurses are able to assess environmental stimuli which are stressful to their patients.

Significance of the Study

Stimuli experienced during illness and hospitalization influence patient recovery. It is the nurse's responsibility to recognize the stimuli experienced by each patient and direct nursing interventions toward promotion of patient adaptation. . times critical care nurses assume that stimuli are stressful to an ICU patient. However, in order to assist the patient, the nurse must be able to identify the stimuli which the patient considers stressful. Once identified, nurses can manipulate stimuli in the environment to reduce stress. Nurses must determine the patients' perceptions of stimuli in order to establish and implement an effective plan of care.

CHAPTER II

Review of Literature

A review of the literature demonstrated that the study of the influence of stress on ICU patients was divided into three areas. The areas of research were: (a) identification of stressful factors in the ICU environment, (b) patients' perceptions of and reactions to the stimuli they experienced, and (c) comparisons of patients' and nurses' perceptions of stress in the ICU.

Environmental Factors

Many environmental factors affect patients in an ICU. Lights are kept on 24 hours a day. There is noise from monitors, infusion pumps, and the conversations of staff and visitors. Tests and procedures are performed around the clock, the schedule of which is determined by the patient's condition. The geographic layout of the ICU places patients in close proximity to one another and there is little provision for privacy. The patient has little control over his/her environment (Parillo & Ayres, 1984).

Using audiometers, Woods and Falk (1974) measured mean noise levels at the head of subjects' beds in a 7 bed acute care unit and 17 bed recovery room. During the three days of the study, the levels of noise in 10-15% of the observations equalled or exceeded the 70 decibel level which is capable of causing arousal from sleep. Noise levels in the remainder of the observations were less than 70 decibels. A Pearson r correlation of 0.61 (p < .01) was demonstrated between noise level

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and the number of patients in the unit and a correlation of .60 (p < .01) was shown between noise level and the number of staff at the bedside.

Ogilvie (1980) used an audiometer to compare sources and levels of noise on two surgical floors. The study was conducted over four nights and the average noise level on both floors exceeded the 35 decibel level recommended by the U. S. Environmental Protection Agency (EPA). The researchers reported that the most frequent sources of noise were nurses' and patients' conversations.

The close proximity of patients in an ICU facilitates patients' observation of invasive procedures performed on others. Vanson, Katz, and Krekeler (1980) studied the reactions of 31 patients witnessing a Swan-Ganz insertion, a temporary transvenous pacemaker insertion, or cardioversion. Pulse rate and systolic blood pressure elevations from baseline were considered evidence of a physiologic stress reaction to observing procedures performed on others. The subjects in an open unit who directly witnessed the procedures had a statistically significant rise in pulse and blood pressure (p < .001) which slowly returned to baseline. Patients in a unit with individual rooms who were aware of the procedures but did not directly witness them showed no change in pulse or blood pressure.

Sleep Deprivation

Environmental factors combine to make sleep difficult in the critical care setting. Egerton and Kay (1964) conducted one of the first studies on the psychological impact of the ICU. They studied 60 postcardiac surgery patients who spent an average of one week in the ICU. They found that psychoses and delerium occurred in 25 patients and were preceded by one to two nights without sleep.

Frequent vital signs, medication administration, laboratory rounds, and treatments make it almost impossible for patients to sleep. McFaddin and Giblin (1971) observed four patients for four consecutive nights in an ICU. None slept longer than one hour without being interrupted and all were considered sleep deprived. Behavior changes demonstrated by the patients included nightmares, disorientation, lethargy, and restlessness. In a study of four postcardiac surgery patients, Walker (1972) reported that the longest uninterrupted period of sleep was 50 minutes. Behavior patterns were not noted.

Sensory Alteration

Patients in an ICU experience continuous stimuli which alters their ability to interact with the environment. As a result, patients experience both sensory overload and sensory deprivation in an ICU.

Sensory Overload

Sensory overload was defined by Bolin (1974) as a highly intense stimulation that is not patterned. ICU patients are constantly exposed to such stimuli (e.g., vital signs assessment, frequent adjustment of intravenous (IV) infusions, medications, lights, and noise).

When DeMeyer (1967) interviewed 24 postcardiac surgery patients, they described a feeling of not being able to escape - of being literally "tied down" by EKG leads and tubes. They thought that too many different people examined them and checked equipment. They also thought that they were talked about and over, but were not included in their own care. She concluded that these patients were psychologically overstimulated and emotionally deprived.

Wilson (1987) studied 38 patients in a surgical ICU. The patients were interviewed after discharge from the unit and completed a stress rating scale. Wilson found that those who experienced hallucinations and

disorientation ranked four stressors higher in intensity than the patients who did not experience psychological problems (p < .05). Those stressors were too much noise, losing track of time, being talked about rather than talked to, and being examined by several doctors and nurses. These findings suggest that sensory overload has a serious effect on ICU patients.

Sensory Deprivation

Attention was first given to sensory deprivation in studies concerning prisoners of war, shipwrecked sailors, and prisoners in solitary confinement. Marked changes in the ability to think and reason, disorientation, and hallucinations were noted (Jackson & Ellis, 1971). Bolin (1974) defined sensory deprivation as a reduction in the amount and intensity of sensory input.

Egerton and Kay (1964) observed 60 postcardiac surgery patients in an ICU. They felt that the psychological disturbances experienced by the subjects were caused by sensory deprivation. The hallucinations described by the patients usually involved the pattern of the ceiling acoustical tiles - the only visual stimuli the patients experienced while lying flat in bed. All the auditory hallucinations involved strong rhythmic backgrounds (drums, brass bands). The researchers suggested that these psychological disturbances developed as a result of the continuous noise from the cardiac monitors.

Ballard (1981) observed and later interviewed 22 patients in a surgical ICU. Her findings indicated that patients were constantly exposed to a decrease in meaningful stimuli. They were often unable to speak because of endotracheal tubes. Their hearing was impaired by noise and they were unable to understand the terminology used by

the staff. The patients felt isolated from the outside world and quickly lost track of the time and date.

Comparative Studies

Few studies have been conducted comparing patients' and nurses' perceptions of stimuli. One study by Davis (1978) compared nurses' and patients' perceptions of stress in a coronary care unit. Thirty patients and 12 nurses took part in the study which asked them to rate 18 stressors commonly found in a coronary care unit. The events were rated using a 7 point Likert-type scale. Information about the reliability and validity of the tool was not reported. The patients' mean ratings for the items varied from 1.57 (moderately nonstressful) to 5.23 (moderately stressful). The nurses rated items higher in intensity with means ranging from 3.67 (mildly nonstressful) to 6.08 (stressful). A t-test of independent means was used to compare the ratings assigned to the items by the nurses and patients. For 37 (72%) of the events, a significant difference was found in the stress levels reported by the nurses and patients ($p < .05$).

Another study was concerned with the stress of hospitalization on elderly patients (Davies & Peters, 1983). The investigators interviewed a convenience sample of 25 patients and 18 nurses who used a Likert scale to rate 16 stressors commonly encountered in a hospital. Information on the reliability and validity of the tool was not reported. A Pearson r correlation of 0.71 ($p < .001$) was obtained by comparing the overall ratings of nurses and patients. Despite this similarity in overall ratings, 15 nurses used the extremely stressful option as opposed to 6 patients using that category. A significant difference in the use of the extremely stressful category was found using the Fisher exact test

(p < .001). The researchers did not report which items were rated as extremely stressful by the subjects.

A final study involved patients and nurses in a cardiothoracic ICU (Carr & Powers, 1986). Thirty patients who had undergone coronary artery bypass surgery and 18 nurses participated. They rated 30 stressors using a 5 point scale. The instrument was developed by the authors specifically for coronary artery bypass patients. A content validity coefficient of 0.91 was established by a panel of six clinical nurse specialists. A pilot study of seven patients established a reliability coefficient of 0.92. The data were analyzed using a two-way analysis of variance (ANOVA), and results indicated that the nurses rated items more stressful than the patients (p < .005). When the researchers rank-ordered the items, a Spearman rank order correlation indicated moderate agreement between nurse and patient rankings (r_s = 0.68, p < .001).

Summary

The review of the research literature supported the assumption that the ICU is a stressful environment. If beneficial changes are to be made in the environment, nurses must correctly identify factors patients view as stressful.

A few studies have been conducted which compare nurses' and patients' views of ICU stressors. The studies demonstrated that, while there was agreement on which items are most stressful, there was a significant difference in the intensity of stress identified by patients and nurses. The nurses tended to rate items as more stressful than did the patients.

In all the studies, the nurses rated the items based on their experience caring for many critical care patients. No studies have

been conducted in which nurses rated the items based on their assessment of a particular patient for whom they had recently provided care. Further research is needed to determine whether ICU nurses are able to accurately identify stressful stimuli experienced by a particular patient for whom they provided care.

CHAPTER III

Methodology

This was a study comparing the perceptions of patients and nurses of the stimuli experienced in an ICU. Both patients and nurses were interviewed and differences in perceptions were determined.

Design of the Study

This study was a descriptive study in which subjects rated the intensity of stimuli encountered by patients in an ICU. Both patients and nurses were interviewed.

Instrumentation

The instrument (Appendix A) in this study was adapted by Wilson (1987) from scales previously developed by Goh (1977), Davis (1978), and Volicer (1975). The revisions included clarifying language, and selecting stimuli pertinent to the ICU. The instrument contained 22 items (9 psychosocial and 13 physiologic) that have been identified as potentially stressful to the ICU patient. Wilson (1987) demonstrated a reliability coefficient of 0.80 during a pilot study of 10 patients utilizing the test-retest method. A panel of five nurse experts was used to determine the validity of each item. An agreement of 0.80 was necessary for an item to be retained on the scale. The range of scores was not reported.

The demographic data tool was developed specifically for this study (Appendix B). Data collected on the patients included age, marital status, diagnosis, number of days spent in the ICU, whether they had an

ICU orientation tour, and the equipment used while in the ICU (e.g., Foley catheter, ventilator, nasogastric tube). Demographic data collected from the nurses consisted of age and years of critical care experience.

Subjects

The study took place in a large military medical center. The ICU was a large area containing 11 individual patient rooms. Large glass doors across the front of each room opened onto the central nurses' station and allowed continuous observation of the patients.

The unit had an all registered nurse staff supplemented by military medical technicians. The nurses were military officers and all had a bachelor's degree in nursing (BSN). Nurses included in the study had at least six months experience in critical care nursing. Twenty nurses participated in the study.

The ICU population included pre- and postoperative surgical patients and internal medicine patients. Patients scheduled to be cared for in the ICU postoperatively were given an orientation tour of the unit the day prior to their surgery. Internal medicine patients and surgical patients whose admissions to the ICU were unplanned did not receive an orientation. Severity of patient illness and intensity of care required was determined by the nursing staff for each patient at the end of each shift using the Theraputic Intervention Scoring System (TISS) (Cullen, Civelta, Briggs, & Ferrara, 1974).

A convenience sample was comprised of 20 adult patients who were in the ICU a minimum of 24 hours and a maximum of 7 days. Patients were included in the study if:

1. They were over 18 years of age.

2. They could speak, read, and write English.

3. They had not been in an ICU prior to this admission.

4. They did not have a history of psychiatric problems.

5. They were alert, oriented, and did not have a neurologic deficit.

6. They had a minimum of one IV, a Foley catheter, and at least one additional device such as an arterial line, a Swan-Ganz catheter, any type of drainage tube, or form of oxygen therapy while they were in the ICU.

Procedure

Permission was obtained from the university Institutional Review Board (Appendix C). In addition, approval was obtained from the hospital Research and Animal Use Committee and Department of Nursing (Appendix D). Patient charts were reviewed by the investigator to determine patient eligibility. Patient subjects were then contacted in the hospital within 24 hours after transfer from the ICU. The purpose and procedure of the study were explained to each subject by the investigator and written consent obtained (Appendix E). The patients were interviewed privately by the investigator and then the demographic data was collected from the patients' chart.

After the patient had been interviewed, a nurse who had cared for the patient for at least one complete 12-hour shift in the ICU within two days prior to transfer to the floor was approached and asked to participate in the study. The nurses were asked to complete the questionnaire based on their assessment of the designated patient during the time they cared for that patient. The completed questionnaire was then collected by the researcher. The investigator gathered the demographic data verbally from the nurses. The nurse/patient pairs were coded to maintain subject anonymity.

Analysis

The Wilcoxin Signed-Rank test was used to compare the scores of each matched pair. Correlation coefficients were also calculated to determine if a relationship existed between a patient's total stress score and (a) the number of days spent in the ICU, (b) the tocal TISS points assigned in the ICU, and (c) whether the patient had an ICU o tation. Significance was set at an alpha level of 0.01.

Limitations

The limitations of the study included the following:

1. Patients were interviewed after transfer from the ICU which might have altered their perceptions of the stimuli.

2. Nurses completed the questionnaire 1-2 days after caring for the patient which may have altered their recollection of stimuli.

3. The acuity of the patients' health problems may have influenced their perceptions of environmental stressors.

4. Nurses' and patients' perceptions of stressors may have been altered by the ICU patient census, severity of illness or injury, and staffing levels.

5. The findings of the study cannot be generalized to the population due to the setting and small sample size.

CHAPTER IV

Findings·

The purpose of this study was to determine whether there was a significant difference between patients' and nurses' perceptions of the stimuli experienced by ICU patients. Both patients and nurses rated the intensity of 22 stimuli encountered by patients in an ICU.

Description of the Subjects

The subjects in this study consisted of a convenience sample of 20 matched pairs. Each pair consisted of a patient and a nurse who cared for that patient in the ICU. Twenty-three patients were approached and asked to participate in the study. Two refused to participate and one was unable to speak English. The remaining 20 were included in the sample. None of the patients approached reported that they were unable to remember their experiences in the ICU. Twenty nurses were requested to participate and all agreed.

The patients ranged in age from 20-74, with a mean age of 56 years. Fifty-five percent (11) of the sample were over 60 years of age. Twelve of the subjects (60%) were male and eight (40%) were female. The majority (85%) of the patients were married. The patient length-of-stay in the ICU ranged from 1-5 days with 60% of the subjects staying 3 days or longer. The sample was almost evenly divided between those who had an orientation tour of the ICU (55%) and those who did not (45%). The patients were admitted to the ICU with several different diagnoses. The patient diagnoses are presented in Table 1.

Table 1

Patient Diagnoses

Diagnosis	N	%
Cardiac Surgery	5	25
General Surgery	5	25
Respiratory Arrest	3	15
Chronic Obstructive Pulmonary Disease	2	10
Thoracic Surgery	2	10
Diabetic Ketoacidosis	1	5
Upper Gastrointestinal Bleed	1	5
Vascular Surgery	1	5

The nurses in the sample ranged in age from 25-36, with a mean age of 29. They all had at least one year of experience in critical care nursing. The range of experience was 1-12 years with a mean of 4.5 years.

Presentation of Findings

The Wilcoxin Signed-Rank test was used to compare the scores given on the Wilson ICU Stress Scale by each nurse/patient pair. A statistically significant difference in perception of the stimuli affecting the patient was found in 6 of the 20 pairs (30%) (see Table 2).

In 4 of 6 pairs with a significant difference (#2, #3, #5, #10), the nurses' stress scores were higher than the patients'. In the remaining 2 pairs (#16, #19), the patients' scores were higher than the nurse.

The patients' total stress score was determined by adding the scores they assigned to each of the 22 items on the stressor scale. The highest possible total stress score was 66, which would occur if the subject rated

Table 2

Comparison of Patients' and Nurses' Perceptions of Stimuli in an ICU

Pair #	Wilcoxin T-Value	P-Value
1	0.00	1.0000
2	3.21	.0043*
3	6.97	.0001
4	2.73	.0125
5	5.32	.0005*
6	2.02	.0566
7	1.97	.0623
8	2.49	.0215
9	1.98	.0609
10	3.58	.0018*
11	2.73	.0125
12	0.70	.4923
13	0.80	.4269
14	1.06	.2994
15	1.67	.1098
16	3.49	.0022*
17	2.32	.0303
18	2.02	.0566
19	2.98	.0071
20	0.50	.6193

*$p < .01$

each of the items as very stressful (3 points). The total stress scores ranged from 11-38 with a mean of 32.25. The items rated as moderately or very stressful by a majority of the subjects are presented in Table 3.

Table 3

Items Rated Moderately or Very Stressful by Patients

Item	% Patients
Not being able to move freely	60
Being on a ventilator or having oxygen	60
Frequent interruptions of sleep	60
Having major surgery	60

Each of the nine patients who required mechanical ventilation, as well as 3 of the 10 who required oxygen therapy, rated being on a ventilator or having oxygen as moderately or very stressful.

Table 4

Items Rated Moderately or Very Stressful by Nurses

Item	% Nurses
Frequent interruptions of sleep	85
Having pain	80
Being thirsty	80
Not being able to move freely	65
Having major surgery	60
Lack of privacy	60
Having too many tubes	55
Being on a ventilator or h_ _ _ _ _n	55

At the end of each shift, each nurse assigned TISS points based on the patient's acuity and the type and complexity of care delivered. Those patients receiving greater than 60 points per shift were considered to require 1:1 (one patient to one nurse) nursing care. Those patients receiving 30-60 points were considered to require 2:1 care and those assigned less than 30 points required 3:1 care. The total TISS points assigned to the patients while in the ICU ranged from 85-357. The TISS points assigned to an individual patient per day ranged from 11-116, with a mean of 43.5 points/day.

It was determined, using the Pearson correlation, that there was no significant relationship between a patient's total stress score and the number of days spent in the ICU ($r = 0.39$, $p = 0.0830$) or between the patients' total stress score and the severity of illness as determined by the total TISS points assigned in the ICU ($r = 0.32$, $p = 1.685$). A point biserial correlation revealed no significant relationship between the total stress score and whether there was an orientation visit to the ICU ($p_{pb} = 0.22$, $p = .3457$).

Summary

In this study, 30% of the nurse/patient pairs showed a significant difference in their perception of stimuli affecting patients in an ICU. In 4 of the 6 pairs which showed a significant difference, the nurses evidenced a higher perception of stress than the patients. In the other two pairs, the patients revealed higher perceptions of stress than the nurses. No significant relationship was found between the patients' perception of stress (represented by the total stress score) and (a) the number of days spent in the ICU, (b) the total TISS points assigned in the ICU, or (c) whether the patient had an orientation tour prior to admission to the ICU.

CHAPTER V

Discussion, Conclusions, and Recommendations

The purpose of this descriptive survey was to determine whether there was a significant difference between patients' and nurses' perceptions of the stimuli experienced by patients in an ICU. A statistically significant difference in perception was found in 6 (30%) of the 20 nurse/patient pairs studied.

Discussion

In this study, the majority of nurses were able to accurately identify the stimuli adversely affecting their patients. This accordance in perception was probably related to the fact that the nurses were rating the responses of specific patients for whom they had recently cared. The nurses had a minimum of one 12-hour shift to assess and identify the stimuli affecting the patient and the patient's responses to the stimuli. Since this study was conducted with an all BSN nursing staff, their high level of assessment skills may also have been a factor in the nurses' ability to identify the stimuli and their effects. Also, in the last few years research has made nurses more aware of the stressful aspects of the critical care unit and they have become more atuned to their patients' reactions. Therefore, most of the nurses were better able to recognize the stimuli that produce stress.

There was no significant correlation between patients' stress levels and whether or not they had an ICU orientation tour. One explanation may be that the orientation to unit procedures, equipment,

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and staff given to patients who did not have a tour was so thorough that they achieved the same results as the tour. On the other hand, perhaps the orientation tour was simply ineffective or served to raise the patients' anxiety levels.

There was no significant correlation found between patient stress levels and (a) their length of stay in the ICU or (b) their acuity as indicated by TISS points. One explanation for this may be that the patients may have experienced a form of amnesia due to sedation or anesthesia. Narcotic analgesia is frequently used in the critical care setting for pain relief and sedation. Effects of this medication can include euphoria, disorientation, and blurring of perception as well as amnesia. The periods of unconsciousness common to the severely ill and injured may have served to decrease perceptions of stress. The longer a patient remains in the ICU, the more comfortable they become with the enviornment and staff. This may also serve to decrease overall perceptions of stress. In addition, the patients may have used denial as a coping mechanism when the level of stress they experienced exceeded a manageable level.

Findings and Conceptual Framework

The Roy adaptation model formed the framework for this study. Focal and contextual stimuli encountered in an ICU were measured using the Wilson ICU stress scale. The study was concerned with the patients' ability to perceive and identify the stimuli affecting them by use of the cognator subsystem. The study also focused on the nurses' ability to assess their patients' perceptions of and reactions to stimuli. The findings support Roy's contention that nurses are capable of accurately assessing and identifying the stimuli affecting their patients. The assessment process used by the nurses in this study is unknown. Roy

advocates a two-step assessment process in which the patients' behaviors and the stimuli influencing the behaviors are identified. Once that is done, interventions to reduce or manage adaptation to the stimuli can be implemented.

Findings and Literature

The findings of this study do not support those reported by Davis (1978). Davis found significant differences in the perceptions of stress of patients and nurses in a coronary care unit for 72% of the items rated. In this study, however, significant differences were found in only 30% of the cases. The differences in results may be due to the fact that Davis compared the perceptions of independent groups of nurses and patients while the current study utilized matched nurse/patient pairs. The nurses in the Davis study rated the items based on their experience caring for many critically ill patients. In the current study, nurses rated the response of patients for whom they had recently provided care. These results may, therefore, more accurately reflect nurses' ability to assess the reactions of particular patients to stimuli.

The results of the current study were roughly similar to the results of later studies by Davies and Peters (1983) and Carr and Powers (1986). In both later studies, moderate correlations ($r = 0.71$, $r_s = 0.68$ respectively) were found in the overall rating of stressors by independent groups of critical care nurses and patients. In both studies, nurses rated the various stimuli as more stressful than the patients. In the current study, 14 out of 20 nurse/patient pairs had no significant difference in perception of stimuli. In 4 of the 6 pairs that did evidence a difference in perception, the nurses indicated a higher level of stress than the patients.

Findings and Methodology

A convenience sample of 20 nurse/patient pairs was used in this study. This small sample size required the use of a statistical test with little power and therefore the results are not generalizable to the overall critical care population. Each patient was contacted following their transfer from the ICU and the nurse in each pair was contacted after the patient. Because of this timing, the subjects completed the rating scale 24-48 hours after their last interaction which may have affected their perception of events. Since the study took place over a 6 week period, the ICU nurses were aware of its purposes. They may have, consciously or unconsciously, made efforts to more carefully assess their patients' responses to stimuli.

The unit, at the time of the study, had an occupancy level of 80-90%. Multiple transfers in and out of the unit were conducted daily. The high census and turnover rate may have affected the preceptions of both the nurses and patients involved in the study. The high level of activity in the unit may have affected the patients due to increased noise, increased exposure to other patients and emergency activities, and decreased ability of the staff to give highly personalized care. The nurses may have been affected by the need to care for a high number of patients, perform many procedures, and complete the paperwork necessary for admissions and transfers. These factors may account for those six nurse/patient pairs which showed a significant difference in perception of stimuli.

Conclusions

The findings of this study provide implications for nursing practice, research, and education. In the area of nursing practice, the study reinforces the need for nurses to treat patients as individuals. The

findings make clear that nurses are able to accurately assess their patients for both physiologic and psychologic reactions to stimuli from the internal and external environments. The nurses' assessment must be validated with the patients before interventions to manipulate the environment and promote patient adaptation to the stimuli are implemented.

In nursing research, replications of this study should be done to validate the results. An extension of the study should involve the examination of various nursing interventions and their effect on patient stress levels. Studies should be undertaken to examine the effects of ICU orientation programs on patient stress levels. Perhaps the night before surgery, the patients' anxiety levels are too high and they are too overloaded with information to receive any benefit from the orientation tour. Stress levels could be compared in groups who were oriented to the ICU one day prior to surgery and two days prior to surgery.

The effects of stimuli (both in and out of the ICU) on the hospitalized patient need to be a part of generic nursing and continuing education programs. Emphasis should be placed on assessment procedures and nursing interventions to reduce patient stress and promote adaptation. The Roy adaptation model is being used as the conceptual basis for several nursing programs (Roy, 1984) and provides an excellent framework for nursing education.

Recommendations

Recommendations for further research suggested by this study include:

1. Replicate this study using a larger sample size in various types of critical care settings.

2. Extend the findings of this study by conducting research examining nursing interventions which alter environmental stimuli and

their subsequent impact on the amount of stress experienced by patients.

 3. Examine the effects of ICU orientation on patient stress levels.

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Appendix A

Wilson ICU Stress Scale

WILSON ICU STRESS SCALE

These items have been identified as potentially stressful to patients in an intensive care unit. Please indicate the intensity of stress you associate with each item, based on your experience in the ICU.
Rate each item according to the following scale:

0 - Not stressful
1 - Slightly stressful
2 - Moderately stressful
3 - Very stressful

Being placed on a heart monitor _____

Not being able to smoke _____

Limits on visiting with family and friends _____

Having major surgery _____

Having pain _____

Not being able to move freely _____

Having too many tubes _____

Having an IV _____

Frequent drawing of blood _____

Being on a ventilator or having oxygen _____

Being examined by several doctors and nurses _____

No explanation of treatments _____

Having doctors and nurses talk about you (the patient) rather than to you (the patient) _____

Overhearing staff talk to other patients _____

Uncomfortable temperature _____

Too much light _____

Too much noise _____

Being thirsty _____

Lack of privacy _____

Unable to see outdoors _____

Losing track of time _____

Frequent interruptions of sleep _____

Appendix B

Demographic Data Tool

DEMOGRAPHIC DATA - PATIENT

Age   _____

Marital status   1. Married   _____
                        2. Single   _____
                        3. Widowed   _____
                        4. Separated   _____
                        5. Divorced   _____

Diagnosis   _____
                        _____
                        _____

ICU Days   _____

Preop Visit   1. Yes   _____
                        2. No   _____

Equipment (in ICU)   _____
                        _____
                        _____

                              Day   Night
TISS points   1   _____   _____
                     2   _____   _____
                     3   _____   _____
                     4   _____   _____
                     5   _____   _____
                     6   _____   _____
                     7   _____   _____

                    Total _____

Medication (on floor)   _____
                        _____
                        _____

DEMOGRAPHIC DATA - NURSE

Age   _____

Critical Care Experience (Years)   _____

Appendix C

Institutional Review Board Consent Form

UAB

The University of Alabama in Birmingham
Institutional Review Board for Human Use
205/934-1789

FORM 4: IDENTIFICATION AND CERTIFICATION OF RESEARCH PROJECTS INVOLVING HUMAN SUBJECTS

The Institutional Review Board (IRB) must complete this form for all applications for research and training grants, program project and center grants, demonstration grants, fellowships, traineeships, awards; and other proposals which might involve the use of human research subjects independent of source of funding.

This form does not apply to applications for grants limited to the support of construction, alterations and renovations, or research resources.

PRINCIPAL INVESTIGATOR   Janice L. Ables

PROJECT TITLE   Stressors Experienced by CIU Patients: A Comparison of

Patients' and Nurses' Recollections

_____ 1. This is a training grant. Each research project involving human subjects proposed by trainees must be reviewed separately by the Institutional Review Board (IRB).

_____ 2. This application includes research involving human subjects. The IRB has reviewed and approved this application on _____, in accordance with UAB's assurance approved by the United States Public Health Service. The project will be subject to annual continuing review as provided in that assurance.

_____ This project received expedited review.

_____ This project received full board review.

_____ 3. This application may include research involving human subjects. Review is pending by the IRB as provided by UAB's assurance. Completion of review will be certified by issuance of another FORM 4 as soon as possible.

__X__ 4. Exemption is approved based on number(s) ___3___.

_2-5-88_
Date

Russell Cunningham, M.D.
Interim Chairman of the
Institutional Review Board

Appendix D

Hospital Reserach and Animal Use Committee Consent Form

DEPARTMENT OF THE AIR FORCE
USAF MEDICAL CENTER, KEESLER (ATC)
KEESLER AIR FORCE BASE MS   39534-5300

9 March 1988

SUBJECT Clinical Investigation, "Stressors Experienced by ICU Patients: A Comparison of
Patients' and Nurses' Recollections"

TO KTTC/SG/Colonel Thompson

1. On 23 February 1988 the Institutional Review and Animal Use Committee
reviewed and approved the attached Clinical Investigation Proposal, "Stressors
Experienced by ICU Patients: A Comparison of Patients' and Nurses' Recollections,"
Janice L. Ables, Captain, USAF, NC, Principal Investigator. This clinical investi-
gation is exempt from the provisions of AFR 169-6.

2. Request your review and approval of subject proposal.

WILLIAM H. STIGELMAN, JR., Lt Colonel, USAF, BSC   1 Atch
Director, Clinical Research Laboratory   Clinical Investigation Proposal

1st Ind, KTTC/SG (Colonel Thompson, 6510)   9   MAR 1988

TO: KTTC/SGS/Lt Colonel Stigelman

Subject proposal is approved/disapproved.

BARRY H. THOMPSON, Colonel, USAF, MC   1 Atch
Commander   nc

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Appendix E

Subject Consent Form

CONSENT FORM

In signing this form, I am agreeing to participate in a research study that will focus on the experiences and needs of patients in an Intensive Care Unit. This study is sanctioned by the University of Alabama at Birmingham and Keesler USAF Medical Center.

I understand that I will be asked to rate according to intensity several events that might have been stressful or anxiety provoking during my stay in the ICU. The interview should take approximately 10-20 minutes to complete. The results of this and other patient interviews will be compared to those of ICU nurses. The study will allow nurses to develop a better understanding of the patient's view of the ICU and therefore help improve the nursing care given those patients.

This interview is entirely voluntary and I can refuse to answer any question or stop the interview at any time. I understand that if I should decide to end the interview there will be no changes in my care or benefits. I have been told that my answers to questions will not be given to anyone else and no reports of this study will identify me in any way.

Capt. Ables has answered all my questions concerning my participation in the study. I understand the results of this research will be given to me if I ask for them.

_____   _____
Volunteer's Signature   Date

_____
Interviewer